STRUCTURAL NOTES

BUILDING CODE: 2006 INTERNATIONAL BUILDING CODE

ANY REFERENCES TO VARIOUS TRADE CODES THROUGHOUT THESE NOTES ARE TO THE YEAR OF THE CODE CITED IN THE ABOVE REFERENCE BUILDING CODE.

DESIGN LIVE LOADS

ROOF STRUCTURAL ELEMENTS SHALL BE DESIGNED FOR THE MORE CRITICAL OF THE FOLLOWING LOAD CASES
CASE 1 30 PSF MINIMUM (NOT REDUCIBLE)
CASE 2 SNOW LOAD BASED ON 30 PSF GROUND SNOW LOAD WITH APPLICABLE DRIFT AND SLIDING LOADS
ROOF SNOW LOAD DESIGN DATA:
FLAT ROOF SNOW LOAD (PF) – 25.2 PSF
SNOW EXPOSURE FACTOR (CE) – 1.0
SNOW LOAD IMPORTANTANCE FACTOR (I) – 1.2
THERMAL FACTOR (CT) – 1.0

FLOORS: THE FLOOR AREAS HAVE BEEN DESIGNED FOR THE FOLLOWING MINIMUM LIVE LOADS. LIVE LOAD REDUCTION HAS NOT BEEN CONSIDERED IN FLOOR AND COLUMN DESIGN.

STAIRS	100 PSF / 300# CONC. LOAD
ELEVATORS	DESIGNED FOR THE ACTUAL LOADS IMPOSED BY ELEVATORS INCREASED BY 100% FOR IMPACT
PUBLIC SPACES	100 PSF
OFFICES	50 PSF + 20 PSF PARTITION LOAD
CORRIDORS – FIRST FLOOR	100 PSF
– UPPER FLOORS	80 PSF
MECHANICAL ROOMS	150 PSF
EQUIPMENT SUPPORTS	DESIGNED FOR ACTUAL LOADS INDICATED ON THE DRAWINGS
STORAGE	125 PSF

DESIGN DEAD LOADS

ROOF 25 PSF

LATERAL LOADS

DESIGN WIND LOADS ARE BASED ON THE 2006 INTERNATIONAL BUILDING CODE WITH A BASIC WIND SPEED (3 SEC GUST) OF 90 MPH, EXPOSURE C, WIND IMPORTANCE FACTOR (IW) OF 1.15. NET WIND UPLIFT ON ROOF WITH RESPECT TO METAL DECK AND OPEN WEB STEEL JOISTS TO BE 12 PSF.

MAIN FRAME DESIGN WIND PRESSURES (PSF)

HEIGHT ABOVE GROUND (FT.)	HORIZONTAL PRESSURES INTERIOR ZONE	HORIZONTAL PRESSURES CORNER ZONE	VERTICAL PRESSURES INTERIOR ZONE	VERTICAL PRESSURES CORNER ZONE
0 – 30	10	14.5	–15.4	–10.7

COMPONENTS AND CLADDING NET DESIGN WIND PRESSURES (PSF)

ROOF	ZONE 1	AREA=10 SF +18.2 PSF, –25.1 PSF
		AREA=20 SF +17.3 PSF, –24.4 PSF
		AREA=50 SF +15.2 PSF, –23.7 PSF
		AREA=100 SF+14.7 PSF, –23.3 PSF
	ZONE 2	AREA=10 SF +18.2 PSF, –38.9 PSF
		AREA=20 SF +17.3 PSF, –36.3 PSF
		AREA=50 SF +15.2 PSF, –32.9 PSF
		AREA=100 SF+14.7 PSF, –30.3 PSF
WALL	ZONE 4	AREA=10 SF +26.8 PSF, –28.5 PSF
		AREA=20 SF +25.9 PSF, –15.1 PSF
		AREA=50 SF +24.2 PSF, –14.3 PSF
		AREA=100 SF+23.4 PSF, –13.6 PSF
	ZONE 5	AREA=10 SF +26.8 PSF, –33.7 PSF
		AREA=20 SF +25.9 PSF, –32.0 PSF
		AREA=50 SF +24.2 PSF, –29.4 PSF
		AREA=100 SF+23.4 PSF, –27.7 PSF

SEISMIC LOAD ANALYSIS

0.2 SEC SPECTRAL RESPONSE ACCELERATION(SC)	15.5%G
1.0 SEC SPECTRAL RESPONSE ACCELERATION(SL)	5.0%G
SPECTRAL RESPONSE COEFFICENT, SHORT (SDS)	0.165
SPECTRAL RESPONSE COEFFICENT, 1 SEC (SD1)	0.081
SEISMIC OCCUPANCY CATEGORY	II
SEISMIC DESIGN CATEGORY	B
SOIL DESIGN CLASS	D
SOIL SITE COEFFICIENT (FA/FV)	1.6/2.4
SEISMIC IMPORTANCE FACTOR(IE)	1.25
BASIC SEISMIC FORCE RESISTING SYSTEM	UNREINF. MASONRY SHEAR WALLS
BUILDING HEIGHT LIMITATIONS	NOT LIMITED
RESPONSE MODIFICATION FACTOR	R = 1.50
DEFLECTION AMPLIFICATION FACTOR	CD = 1.25
ANALYSIS PROCEDURE UTILIZED	EQUIVALENT LATERAL FORCE

GENERAL NOTES

REFER TO THE ARCHITECTURAL, ELECTRICAL, MECHANICAL AND PLUMBING DRAWINGS FOR ADDITIONAL SLEEVES, ANCHORS, VENT OPENINGS, ETC. NOT SHOWN ON THE STRUCTURAL PLANS.

ALL MATERIALS SHALL BE IN CONFORMANCE WITH THE LATEST EDITION OF THE ASTM SPECIFICATIONS NOTED IN THE STRUCTURAL NOTES [AND PROJECT SPECIFICATIONS] BASED ON THE FINAL DATE NOTED ON THE CONSTRUCTION DOCUMENTS.

THIS PROJECT HAS BEEN DESIGNED FOR THE WEIGHTS OF THE MATERIALS INDICATED ON THE DRAWINGS AND FOR THE LIVE LOADS INDICATED IN THE DESIGN DATA ABOVE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ADDITIONAL SHORING AND BRACING FOR THE STRUCTURE IF ACTUAL CONSTRUCTION LOADS EXCEED THE DESIGN LOADS.

ALL DIMENSIONS AND NOTES SHALL SUPERSEDE ALL SCALE REFERENCES ON THE DRAWINGS.

ALL WORK SPECIFIED HEREIN SHALL BE INSPECTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, THE BUILDING CODE AND ALL LOCAL ORDINANCES. THE OWNER SHALL HIRE AN EXPERIENCED, QUALIFIED SPECIAL INSPECTOR TO PERFORM ALL THE REQUIRED INSPECTION WORK. ADTEK ENGINEERS WILL NOT PERFORM THE CONTINUOUS DAILY SPECIAL INSPECTIONS DURING CONSTRUCTION. ADTEK ENGINEERS MAY VISIT THE SITE TO ASCERTAIN GENERAL CONFORMANCE TO THE CONTRACT DOCUMENTS AND SUCH VISITS ARE NOT TO BE CONSTRUED AS MEETING THE DAILY SPECIAL INSPECTION REQUIREMENTS UNLESS THE ENGINEER SPECIFICALLY SO STATES IN WRITING.

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CONTRACTOR RESPONSIBILITIES

THE FOLLOWING LIST IS NOT INTENDED TO BE ALL INCLUSIVE, BUT MERELY TO PLACE EMPHASIS ON PARTICULAR ITEMS OF JOB SCHEDULING AND SAFETY.

1. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE PROJECT ARCHITECT FOR REVIEW, ALLOWING A MINIMUM OF TWO WEEKS FOR REVIEW BY STRUCTURAL ENGINEER.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REDESIGN OF THE STRUCTURAL SUPPORTS OF EQUIPMENT WHEN THE OPERATING WEIGHTS OF THE EQUIPMENT PROVIDED (INCLUDING CURBS AND ACCESSORIES) EXCEEDS THE MAXIMUM DESIGN WEIGHTS NOTED ON THE STRUCTURAL DRAWINGS. SUBMIT STRUCTURAL CALCULATIONS AND DETAILS FOR THE REVISED EQUIPMENT SUPPORT TO THE PROJECT ARCHITECT FOR REVIEW. THE SUBMITTAL SHALL BE STAMPED AND SIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF MARYLAND.
3. THE CONTRACTOR SHALL NOTIFY THE PROJECT SPECIAL INSPECTOR IN ADVANCE OF WORK REQUIRING INSPECTIONS OR ON-SITE PERSONNEL. COORDINATE ADVANCE NOTIFICATION REQUIREMENTS WITH THE SPECIAL INSPECTOR.
4. IF THE CONTRACTOR ANTICIPATES A PROBLEM THAT WILL REQUIRE ASSISTANCE FROM THE PROJECT STRUCTURAL ENGINEER, THE CONTRACTOR SHALL MAKE EVERY EFFORT TO PROVIDE THE ENGINEER WITH AMPLE NOTICE.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT ALL CONSTRUCTION IS ACCORDING TO THE SIGNED AND SEALED CONSTRUCTION DOCUMENTS AND THE REVIEWED SHOP DRAWINGS.
6. THE CONTRACTOR SHALL ENGAGE A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF MARYLAND TO DESIGN AND DETAIL THE SUBMITTAL ITEMS NOTED IN THE STRUCTURAL NOTES (I.E. UNDERPINNING, SHORING, FORMWORK, LIGHT GAGE STEEL, PRE-ENGINEERED COMPONENTS, ETC.). THE ENGINEER MUST HAVE A MINIMUM OF THREE YEARS EXPERIENCE IN THE DESIGN OF THE TYPE OF STRUCTURE REQUIRED FOR THE SUBMITTAL. THE SUBMITTAL SHALL INCLUDE A CERTIFICATE INDICATING THAT THE ENGINEER CURRENTLY HAS PROFESSIONAL LIABILITY INSURANCE WITH A MINIMUM AGGREGATE COVERAGE OF $500,000.00. THE ENGINEER SHALL PERFORM PERIODIC FIELD OBSERVATIONS AND ISSUE A FINAL CERTIFICATION FOR THE FINAL CONSTRUCTION OF THE STRUCTURE INCLUDED IN THEIR SUBMITTAL.
7. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING BETWEEN THE STRUCTURAL AND ARCHITECTURAL DRAWINGS. THE CONTRACTOR IS TO NOTIFY THE ARCHITECT IN THE CASE OF ANY DISCREPANCIES PRIOR TO COMMENCING WITH THE WORK.
8. THE CONTRACTOR IS RESPONSIBLE FOR METHODS TO INSURE CONSTRUCTION SAFETY AT THE SITE THROUGHOUT THE COURSE OF THE PROJECT CONSTRUCTION. SEE O.S.H.A. REGULATIONS FOR CONSTRUCTION.
9. UPON STRUCTURAL COMPLETION OF THE PROJECT, THE SPECIAL INSPECTOR SHALL SUBMIT A LETTER OF CERTIFICATION TO THE CITY INDICATING THAT THE STRUCTURE IS IN COMPLIANCE WITH THE PLANS, SPECIFICATIONS, CONCRETE TEST REPORTS AND CODE REQUIREMENTS. THIS LETTER MUST BE REVIEWED BY THE ARCHITECT AND ENGINEER OF RECORD BEFORE SUBMITTAL.

SUBMITTALS

UNLESS OTHERWISE NOTED ELSEWHERE IN THE CONSTRUCTION DOCUMENTS, SHOP DRAWINGS SHALL BE REQUIRED ON THE FOLLOWING ITEMS:

1. CONCRETE MIX DESIGN BY EITHER TRIAL BATCH OR FIELD EXPERIENCE METHODS. (EACH SUBMITTED MIX MUST IDENTIFY ITS INTENDED USE)
2. * UNDERPINNING SEQUENCE WITH DETAILS AND CALCULATIONS
3. * SHORING AND BRACING FOR BUILDING ELEMENTS WITH CALCULATIONS
4. * BRACING OF MASONRY WALLS OVER 8'-0" PER OSHA (DRAWINGS AND CALCULATIONS)
5. CONCRETE REINFORCING
6. MASONRY REINFORCING
7. STRUCTURAL STEEL
8. * STRUCTURAL STEEL MOMENT CONNECTIONS WITH CALCULATIONS
9. STEEL JOISTS
10. METAL DECK (INCLUDING SECTION PROPERTIES OF DECK)
11. * COLD FORMED METAL FRAMING (ERECTION PLANS AND CALCULATIONS)
12. * PRE-ENGINEERED BUILDING STRUCTURAL COMPONENTS (PLANS, DETAILS AND CALCULATIONS)

SUBMITTAL NOTES:

3. SUBMIT THE SHOP DRAWINGS NOTED ABOVE TO THE PROJECT ARCHITECT FOR REVIEW.
4. SUBMITTALS (DRAWINGS AND CALCULATIONS) NOTED WITH * ABOVE SHALL BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF MARYLAND. SEE "CONTRACTOR RESPONSIBILITIES" ABOVE FOR ADDITIONAL REQUIREMENTS.
5. REPRODUCTION OF ANY PORTION OF THE STRUCTURAL CONSTRUCTION DOCUMENTS FOR USE AS SHOP DRAWINGS IS PROHIBITED.

SPECIAL INSPECTIONS

SPECIAL INSPECTIONS ARE REQUIRED DURING CONSTRUCTION IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND CHAPTER 17 OF THE INTERNATIONAL BUILDING CODE. THE TERM SPECIAL INSPECTOR REFERS TO THE SPECIAL INSPECTING ENGINEER OF RECORD HIRED BY THE CONTRACTOR IN COMPLIANCE WITH THE INTERNATIONAL BUILDING CODE. INSPECTIONS OF FOUNDATION SUBGRADES MUST BE CONDUCTED BY A LICENSED GEOTECHNICAL ENGINEER, REFERRED TO HEREIN AS THE GEOTECHNICAL INSPECTOR. SPECIAL INSPECTIONS SHALL BE PERFORMED FOR, BUT NOT LIMITED TO, THE FOLLOWING STRUCTURAL ITEMS:

1. FOUNDATION SUBGRADES
2. FOUNDATION REINFORCING
3. CONCRETE MIX AND PLACEMENT
4. MASONRY REINFORCING
5. MASONRY GROUT
6. STRUCTURAL STEEL ERECTION
7. STEEL JOISTS
8. METAL DECKING
9. STRUCTURAL COLD FORMED METAL FRAMING
10. TIMBER FRAMING (INCLUDING LVL AND TRUSS MEMBERS)
11. PRE-ENGINEERED BUILDING COMPONENTS

FOUNDATION

ASSUMED SOIL BEARING VALUE

1500 POUNDS PER SQUARE FOOT FOR COLUMN AND WALL FOOTINGS.

SUBSURFACE INVESTIGATION

SUBSURFACE INVESTIGATION AND REPORT BY PATTON HARRIS RUST AND ASSOCIATES

TELEPHONE NO: 703-777-3616 REPORT NO: 16290-1-0
GEOTECHNICAL REPORT DATED: OCTOBER 16, 2009

ALL FOUNDATION WORK AND SOIL COMPACTION SHALL BE IN STRICT ACCORDANCE WITH THE GEOTECHNICAL REPORT FOR THE PROJECT.

ALL SPREAD FOOTINGS SHALL EXTEND MINIMUM 1'-0" INTO UNDISTURBED SOIL OR SHALL BEAR ON COMPACTED STRUCTURAL FILL. PLACE THE FILL REQUIRED TO BRING THE SUBGRADE TO THE PROPER ELEVATION PRIOR TO INSTALLING THE FOUNDATION.

THE BOTTOM OF ALL EXTERIOR FOOTINGS SHALL BE A MINIMUM OF 2'-6" BELOW THE FINISHED EXTERIOR GRADE UNLESS NOTED OTHERWISE.

THE ELEVATION AT THE TOP OF FOOTINGS SHALL NOT BE HIGHER THAN INDICATED ON THE FOUNDATION PLAN, NOTES AND SECTIONS. THE FOOTING ELEVATIONS SHOWN ON THE DRAWINGS ARE FOR ESTIMATION PURPOSES ONLY. LOWER THE FOOTING ELEVATIONS, IF REQUIRED TO ACHIEVE THE REQUIRED DESIGN BEARING CAPACITY OR FOR COORDINATION WITH UTILITIES.

THE FINAL SOIL BEARING CAPACITY AND FOUNDATION SUBGRADES SHALL BE INSPECTED AND APPROVED BY THE GEOTECHNICAL INSPECTOR PRIOR TO THE CONCRETE FOOTING INSTALLATION. THE CONTRACTOR SHOULD TAKE NOTE OF ANY WATER CONDITIONS OR EXPANSIVE CLAYS AT THE SITE. FOUNDATION SUBGRADES SHALL REMAIN DRY DURING CONSTRUCTION. EXPANSIVE CLAYS SHALL BE REMOVED AND REPLACED WITH COMPACTED BACKFILL UNDER THE SUPERVISION OF THE PROJECT GEOTECHNICAL ENGINEER TO A MINIMUM DEPTH OF 4'-0" BELOW FINISHED GRADE.

FOUNDATION DRAIN

PROVIDE A CONTINUOUS 4" DIAMETER PERFORATED PLASTIC PIPE SURROUNDED WITH A MINIMUM OF 4 INCHES OF GRAVEL AND A FILTER FABRIC WHERE INDICATED ON THE FOUNDATION PLAN THUS:

BACKFILL OF BELOW GRADE FOUNDATION WALLS

THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO BRACE ALL WALLS WHEN BACKFILLING. BACKFILLING AGAINST WALLS SHALL NOT BE PERMITTED UNTIL SUPPORTING STRUCTURES ARE IN PLACE OR UNTIL ADEQUATE BRACING ARRANGEMENTS ARE APPROVED BY THE GEOTECHNICAL INSPECTOR. THE CONTRACTOR SHALL NOT OVERLOAD THE WALL WITH HEAVY EQUIPMENT DURING PLACEMENT OF BACKFILL ADJACENT TO THE WALL. ONLY LIGHTWEIGHT (A MAXIMUM OF ONE TON TOTAL WEIGHT) EQUIPMENT SHALL BE PERMITTED WITHIN THE CRITICAL ZONE DEFINED AS BEGINNING AT THE BASE OF THE WALL AND WIDENING UPWARD FROM THE BASE ON A 1:1 SLOPE. STAGGER BACK FILL FROM SIDE TO SIDE OF THE WALL SO THAT NO MORE THAN 2'-0" OF OFFSETTING GRADE IS PRESENT.

STRUCTURAL COMPACTED FILL

STRUCTURAL COMPACTED FILL FOR FOUNDATIONS AND SLAB ON GRADE SHALL BE APPROVED BY THE PROJECT GEOTECHNICAL ENGINEER AND COMPACTED IN 8" LOOSE LAYERS AND COMPACTED TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY BASED ON THE STANDARD PROCTOR COMPACTION TEST (ASTM D-698) [MODIFIED PROCTOR COMPACTION TEST (ASTM D-1557)].

EXISTING CONDITIONS

ALL EXISTING CONDITIONS SHALL BE CHECKED AND VERIFIED IN THE FIELD BEFORE EXCAVATION, DEMOLITION, OR CONSTRUCTION IS BEGUN. EXISTING UTILITIES SHALL BE LOCATED AND PROTECTED AS REQUIRED BY THE EXCAVATION, DEMOLITION, OR CONSTRUCTION. FIELD MEASUREMENTS SHALL BE MADE OF ADJOINING CONSTRUCTION RELATIVE TO THE PROPER INSTALLATION OF NEW WORK. ALL DISCREPANCIES SHALL BE REPORTED TO THE PROJECT ARCHITECT AND STRUCTURAL ENGINEER PRIOR TO PROCEEDING WITH THE WORK IN THE AREA OF THE DISCREPANCY.

ALL EXISTING MATERIALS INDICATED ON THE DRAWINGS TO BE DEMOLISHED SHALL BE REMOVED AS INDICATED IN THE PROJECT SPECIFICATIONS.

FIELD VERIFY ALL RELEVANT EXISTING DIMENSIONS, ELEVATIONS, AND MEMBER SIZES.

SHEETING AND SHORING

SHEETING AND SHORING SHALL BE PROVIDED AS REQUIRED TO PROTECT EXISTING CONSTRUCTION AND TO AVOID CAVING OF EXCAVATIONS AND EXISTING STRUCTURES. SHORE EXCAVATIONS AS REQUIRED BY THE PROJECT GEOTECHNICAL REPORT AND O.S.H.A. REGULATIONS.

THE SHEETING AND SHORING DESIGN SHALL BE IN ACCORDANCE WITH THE PROJECT GEOTECHNICAL REPORT, THE SPECIFICATIONS, AND AS REQUIRED BY THE CONSTRUCTION.

UNDERPINNING

UNDERPINNING SHALL BE PROVIDED AS REQUIRED TO PROTECT EXISTING CONSTRUCTION AND TO AVOID CAVING OF EXISTING STRUCTURES, AND AS IDENTIFIED IN THE DRAWINGS.

THE UNDERPINNING DESIGN SHALL BE IN ACCORDANCE WITH THE PROJECT GEOTECHNICAL REPORT AND THE SPECIFICATIONS, AND AS REQUIRED BY THE CONSTRUCTION. SUBMIT SHOP DRAWINGS SHOWING ACTUAL SEQUENCE AND DETAILS OF THE UNDERPINNING PROCEDURE. SEE THE "CONTRACTOR RESPONSIBILITIES" AND "SUBMITTAL" NOTES ABOVE FOR ADDITIONAL REQUIREMENTS.

THE UNDERPINNING OF EXISTING WALL FOOTINGS SHALL BE EXECUTED IN ALTERNATE SHORT SECTIONS. SECTION WIDTHS SHALL NOT EXCEED FOUR FEET ALONG THE WALL AND SECTIONS SHALL BE SPACED AT A MINIMUM OF EIGHT FEET ON CENTER. INSTALL A MINIMUM TWO INCH THICK LAYER OF DRY PACKED GROUT BETWEEN THE UNDERSIDE OF THE EXISTING FOOTING AND THE TOP OF THE NEW CONCRETE UNDERPINNING. SPLICE CONTINUOUS REINFORCING IN THE UNDERPINNING IN ACCORDANCE WITH THE CONCRETE NOTES BELOW. DO NOT EXCAVATE FOR NEW UNDERPINNING SECTIONS UNTIL PREVIOUS CONCRETE SECTIONS AND GROUT HAVE OBTAINED THE DESIGN STRENGTH.

THE CONTRACTOR SHALL VERIFY THE CONDITION OF THE EXISTING STRUCTURE IN THE AREA OF THE PROPOSED UNDERPINNING. THE CONTRACTOR IS RESPONSIBLE FOR THE COST OF THE DESIGN AND REPAIR OF EXISTING STRUCTURES AND/OR FINISHES DAMAGED DURING UNDERPINNING OPERATIONS.

SHORING OF BUILDING STRUCTURAL MEMBERS

SHORING OF STRUCTURAL ELEMENTS SHALL BE PROVIDED AS REQUIRED TO PROTECT EXISTING CONSTRUCTION. THE SHORING DESIGN SHALL BE AS REQUIRED BY THE CONSTRUCTION. SUBMIT SHOP DRAWINGS SHOWING ACTUAL SEQUENCE AND DETAILS OF THE SHORING PROCEDURE, AS WELL AS CALCULATIONS INDICATING THAT THE EXISTING BUILDING LOADS AND CONSTRUCTION LOADS HAVE BEEN ACCOMMODATED IN THE SHORING DESIGN. SEE THE "CONTRACTOR RESPONSIBILITIES" AND "SUBMITTAL" NOTES ABOVE FOR ADDITIONAL REQUIREMENTS.

THE CONTRACTOR SHALL VERIFY THE CONDITION OF THE EXISTING STRUCTURE IN THE AREA OF THE PROPOSED SHORING. THE CONTRACTOR IS RESPONSIBLE FOR THE COST OF THE DESIGN AND REPAIR OF EXISTING STRUCTURES AND/OR FINISHES DAMAGED DURING SHORING OPERATIONS.

STRUCTURAL CONCRETE

REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60. ALL WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185. DETAILING SHALL BE IN ACCORDANCE WITH ACI MANUAL 315 AND STANDARD 318.

CONCRETE SHALL BE NORMAL WEIGHT. DESIGN COMPRESSIVE STRENGTH AT 28 DAYS SHALL BE 3500 PSI.

MAXIMUM AGGREGATE SIZE FOR CONCRETE SHALL BE IN ACCORDANCE WITH THE MAXIMUM AGGREGATE SIZES IN ACI 318 AND AS FOLLOWS:

FOOTINGS	1½"
CONCRETE PIERS, WALLS, BEAMS, SLABS	¾"
CONCRETE SLABS ON GRADE	¾"

ALL EXTERIOR CONCRETE AND CONCRETE EXPOSED TO WEATHER SHALL BE AIR-ENTRAINED.

CONCRETE AIR CONTENT, SLUMP AND WATER/CEMENT RATIOS SHALL PER SPECIFICATIONS.

THE USE OF ADDITIVES SHALL NOT BE PERMITTED UNLESS SPECIFICALLY APPROVED BY THE STRUCTURAL ENGINEER OR NOTED IN THE PROJECT SPECIFICATIONS. THE USE OF ADDITIVES CONTAINING CALCIUM CHLORIDE SHALL NOT BE PERMITTED.

PROVIDE A HIGH RANGE WATER REDUCER (HRWR OR SUPERPLASTICIZER) FOR PUMPED CONCRETE AND AS REQUIRED FOR WORKABILITY.

ALL REINFORCING STEEL MARKED "CONTINUOUS" SHALL BE LAPPED AS REQUIRED WITH CLASS B TENSION SPLICES PER ACI 315. PROVIDE CLASS B TENSION SPLICES AT WALL CORNERS AND INTERSECTIONS WITH STANDARD 90 DEGREE BENT CORNER BARS, INCLUDING CORNERS OF WALL FOOTINGS AND BOND BEAMS. LAP WELDED WIRE MESH ONE FULL MESH AT SIDE AND END LAPS. PROVIDE CORNER LAP BARS AT ALL LONGITUDINAL FOOTING REINFORCING AS WELL AS AT ALL HORIZONTAL WALL REINFORCING.

ALL TENSION SPLICES IN THE REINFORCING STEEL, UNLESS NOTED OTHERWISE, SHALL HAVE A MINIMUM LAP DISTANCE AS FOLLOWS:

BAR SIZE	MINIMUM CLASS B TOP BARS	TENSION LAP SPLICE OTHER BARS
#3	21"	16"
#4	28"	22"
#5	35"	27"
#6	42"	32"
#7	49"	38"
#8	56"	43"

PROVIDE CONCRETE PROTECTION FOR REINFORCING AS FOLLOWS:

FOOTINGS: 3"
INTERIOR SLABS: 3/4" PIERS: 1½" TO THE TIES
EXTERIOR SLABS: 1½"

ALL CONCRETE WORK, REINFORCING PLACEMENT FORMWORK AND SHORING SHALL BE INSPECTED UNDER THE SUPERVISION OF THE SPECIAL INSPECTOR. CONCRETE QUALITY CONTROL, INSPECTION AND TESTING SHALL BE IN STRICT ACCORDANCE WITH THE PROJECT SPECIFICATIONS, ACI 301 AND THE LOCAL BUILDING CODE REQUIREMENTS.

CONSTRUCTION PRACTICES:

WET STICKING OF DOWELS INTO THE FOOTING WILL NOT BE ACCEPTED. DOWELS SHOULD BE PROPERLY PLACED AND TIED TO LONGITUDINAL FOOTING REINFORCING IN ACCORDANCE WITH CRSI.

SLAB ON GRADE

WHERE INDICATED ON THE PLANS, PROVIDE A MINIMUM 5" THICK CONCRETE SLAB REINFORCED WITH 6x6-W2.1 X W2.1 WELDED WIRE FABRIC OVER A CONTINUOUS VAPOR RETARDER ON 4" OF POROUS FILL . THE WELDED WIRE FABRIC SHALL BE PLACED AT THE MID-DEPTH OF THE SLAB OR 2 INCHES BELOW THE TOP SURFACE OF THE SLAB WHICHEVER IS LESS. THE POROUS FILL SHALL BE ASTM C33, SIZE 467.

WHERE INDICATED ON PLANS, PROVIDE A MINIMUM 8" THICK CONCRETE SLAB REINFORCED WITH #5 @ 12" O.C. TOP AND BOTTOM EACH WAY ON A CONTINUOUS VAPOR RETARDER OVER 6" OF POROUS FILL. THE POROUS FILL SHALL BE ASTM C33, SIZE 467.

MASONRY

ALL MASONRY CONSTRUCTION SHALL BE IN ACCORDANCE WITH FOLLOWING STANDARDS:

BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES – ACI 530/ASCE 5
SPECIFICATIONS FOR MASONRY STRUCTURES ACI 530.1/ASCE 6
SPECIFICATIONS FOR DESIGN AND CONSTRUCTION OF LOAD BEARING CONCRETE MASONRY PUBLISHED BY NATIONAL CONCRETE MASONRY ASSOCIATION.

ALL LOAD BEARING MASONRY WALLS SHALL BE INSPECTED IN ACCORDANCE WITH THE COUNTY REQUIREMENTS.

THE MINIMUM NET AREA COMPRESSIVE STRENGTH OF MASONRY (F'M) SHALL BE 1500 PSI PER ACI 530. THE MINIMUM NET AREA COMPRESSIVE STRENGTH OF CONCRETE MASONRY UNITS SHALL BE 1900 PSI PER ACI 530.

HOLLOW AND SOLID LOAD BEARING CONCRETE MASONRY UNITS SHALL CONFORM TO ASTM C90 AND ASTM C145.

MORTAR SHALL CONFORM TO THE REQUIREMENTS OF THE ASTM TENTATIVE SPECIFICATIONS FOR MORTAR FOR UNIT MASONRY, ASTM C270, TYPE S MORTAR. HOLLOW UNITS SHALL BE LAID WITH FULL MORTAR COVERAGE ON HORIZONTAL AND VERTICAL FACE SHELLS AND WEBS. SOLID UNITS SHALL BE LAID WITH FULL HEAD AND BED JOINTS.

MASONRY GROUT HAVE A 28 DAY COMPRESSIVE STRENGTH OF 2500 PSI, COMPLYING WITH ASTM C476.

REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60. ALL VERTICAL MASONRY REINFORCING SHALL BE INSTALLED IN FULLY GROUTED CELLS AS SHOWN ON THE DRAWINGS. PROVIDE MINIMUM 49 BAR DIAMETER SPLICES FOR #3 THROUGH #5 BARS, MINIMUM 69 BAR DIAMETER SPLICES FOR #6 AND #7 BARS, AND MINIMUM 74 BAR DIAMETER SPLICES FOR #8 AND #9 BARS.

PROVIDE JOINT REINFORCING, DUR-O-WALL OR EQUAL, EVERY BLOCK COURSE BELOW GRADE AND EVERY OTHER BLOCK COURSE ABOVE GRADE UNLESS OTHERWISE SHOWN ON ARCHITECTURAL WALL SECTIONS. JOINT REINFORCING SHALL BE CONTINUOUS AND SHALL BE PROVIDED IN ALL WALLS WITHOUT EXCEPTION. MASONRY JOINT REINFORCING SHALL BE TRUSS TYPE COLD-DRAWN STEEL WIRE CONFORMING TO ASTM A82 AND SHALL BE HOT DIPPED GALVANIZED PER ASTM A153 AFTER FABRICATION. WHERE WALLS ABUT EACH OTHER, AND AT OUTSIDE CORNERS, PROVIDE PREFABRICATED TEE-TYPE AND CORNER TRUSS TIES.

DISCONTINUE JOINT REINFORCING AT CONTROL JOINTS. CONTROL JOINTS SHALL BE SPACED PER THE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS OR AT A MAXIMUM SPACING OF 40'-0" ON CENTER.

PROVIDE TIES FOR MASONRY VENEER WALLS AS DETAILED ON ARCHITECTURAL DRAWINGS. SHEET METAL TIES FOR VENEER ARE NOT ACCEPTABLE. WIRE TIES MUST BE USED.

PROVIDE FLEXIBLE TIES ON STEEL BEAMS AND COLUMNS AT MASONRY WALLS TO PREVENT LATERAL MOVEMENT OF THE WALLS. THE TIES SHALL BE SPACED AT 16" ON CENTER.

ALL MASONRY WALLS SHALL BE TEMPORARILY BRACED IN AN APPROVED MANNER DURING CONSTRUCTION UNTIL MORTAR HAS ATTAINED THE DESIGN STRENGTH AND FLOOR AND ROOF MEMBERS HAVE BEEN PLACED AND ANCHORED THERETO. SUMBIT BRACING DRAWINGS IN ACCORDANCE WITH OSHA REQUIREMENTS. DRAWINGS AND CALCULATIONS ARE TO BE STAMPED AND SIGNED BY A PROFESSIONAL ENGINEER IN ACCORDANCE WITH SUBMITTALS NOTES.

CONSTRUCTION PRACTICES:

1. WET STICKING OF VERTICAL REINFORCING INTO GROUTED CELLS FOR LAPS IS UNACCEPTABLE. LAP AND TIE BARS PER ACI.
2. ALL BELOW GRADE WALLS ARE TO BE GROUTED SOLID.
3. GROUT TOP COURSE SOLID AT ALL TRANSITIONS IN WALL CONSTRUCTION FROM LARGER SIZE BLOCK TO SMALLER SIZE BLOCK. PROVIDE GROUT SCREEN AS REQUIRED.
4. USE VIBRATORS TO CONSOLIDATE GROUT IN MASONRY WALLS. RODDING WILL NOT BE PERMITTED.

BEARING ON MASONRY

UNLESS OTHERWISE NOTED, PROVIDE TWO COURSES OF SOLID GROUTED BLOCK EIGHT INCHES WIDE BY ONE FOOT FOUR INCHES MINIMUM LENGTH AT ALL BEAM BEARING POINTS. PROVIDE A BEARING PLATE 3/4"x6"x8" UNDER ALL STEEL BEAMS BEARING ON MASONRY UNLESS OTHERWISE SHOWN.

MISCELLANEOUS LINTELS

PROVIDE LINTELS FOR ALL OPENINGS IN LOAD-BEARING MASONRY WALLS AS SHOWN ON THE STRUCTURAL DRAWINGS AND PER THE SCHEDULE BELOW, U.N.O.

ALL OPENINGS EXCEEDING 1'-0" IN WIDTH IN NON LOAD-BEARING MASONRY PARTITIONS MUST HAVE A LINTEL PER THE LINTEL SCHEDULE. NON-BEARING MASONRY PARTITIONS ARE NOT INDICATED ON THE STRUCTURAL DRAWINGS. REFER TO THE ARCHITECTURAL DRAWINGS FOR OPENING SIZE, OPENING LOCATION, AND LINTEL TYPE. REFER TO THE SCHEDULE BELOW FOR LINTEL SIZE, FOR THE LINTEL TYPE INDICATED ON THE ARCHITECTURAL DRAWINGS.

MECHANICAL OPENINGS HAVE NOT BEEN SHOWN ON THE STRUCTURAL DRAWINGS. PROVIDE LINTELS FOR ALL MECHANICAL OPENINGS AS PER THE SCHEDULE BELOW. DUCT OPENINGS THROUGH BEARING WALLS ARE TO BE LOCATED BETWEEN THE JOISTS, PROVIDING 1'-0" MINIMUM CLEAR FROM EDGE OF MASONRY OPENING TO JOIST BEARING SEAT. DUCTS ARE NOT TO BE LOCATED DIRECTLY UNDER A JOIST SEAT.

LINTEL TYPES

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Revisions

#	Date	
	02/17/10	PERMIT/BID SET
2	04/22/10	ADDENDUM 4

Client: **CITY OF TAKOMA PARK**

Location: **TAKOMA PARK, MD LOCATION**

Project: **CITY OF TAKOMA PARK PUBLIC WORKS FACILITY**

STRUCTURAL NOTES

Drawn by: SGL

Project No.: 09028.00

Date: 02-17-10

Professional Certification
I certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. license number 25528 expiration date 3-22-11

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PLOT DATE: 04-21-10